Appendix A – Example Messages and Message Elements

I. Messages

Posted Request and Notification Messages

```
<Message>
    <Header>
        <To/>
        <From/>
        <Topic/>?
        <Expiration/>?
    </Header>
    <Body>
        <Document/>*
    </Body>
</Message>
```

Posted Response Messages

```
<Message>
    <Header>
        <Token/>
        <From/>
        <Status/>?
    </Header>
    <Body>
        <Document/>*
    </Body>
</Message>
```

Delivered Request and Notification Messages

```
<Message>
    <Header>
        <Session/>
        <Token/>
        <To/>
        <From/>
        <Topic/>?
    </Header>
    <Body>
        <Document/>*
    </Body>
</Message>
```

Delivered Response Messages

```
<Message>
```

-65-

```
<Header>
    <Session/>
    <Token/>
    <To/>
    <From/>
    <Topic/>?
    <Status/>?
</Header>
<Body>
    <Document/>*
</Body>
</Message>
```

II. Message Elements

<Message>
Purpose:	Root envelope for a message.
Message types:	All message types.
Attributes:	type (required) = request	response	notification
	test (optional) = false (default)	true
Child Elements:	Header-{1}, Body-{1}

Note: The test attribute indicates if the message is a test message – that the message should be routed with no persistent effects in any of the participating services. The message type is "request" when a message is delivered to an engine.

<Header>
Purpose:	Root element for a message header.
Message types:	All message types.
Attributes:	None.
Child Elements:	Session, Token, To, From, Topic, Status, Expiration {Cardinality of elements depends on message type}

<Session>
Purpose:	Unique session identifier assigned by message interchange network to the message.
Message types:	All delivered message types.
Attributes:	id (required) = (globally unique identification string)
Content:	None.

Note: The session is effectively a "tracking slip" for messages. In one embodiment, all services in a message's route receive the same session identifier. The scope of a message session depends on the message type. For a request message, the message session includes the response as well – therefore response messages do not receive a new session. For a notification, the

message session only applies through to the recipients. In an alternative embodiment, a service can demand a new session for an included service, thereby hiding some services from being tracked by the original sender.

<Token>

Purpose: Unique reference identifier assigned by the message interchange network.
Message types: All delivered message types. Posted response.
Attributes: value (required) = (unique identification string)
Content: None.

Note: A token is used to uniquely identify a delivered message when issuing an acknowledge to polled delivery, and serves as a message reference in posted response messages. When a service posts a response message, the message includes the token from the previously received request message.

<To>

Purpose: Identification of the recipients of the message.
Message types: All message types except posted response.
Attributes: None.
Child Elements: Service-{1:N}

Note: The To element indicates the recipients of a posted request or notification message. In delivered messages, the To element indicates the service invoked and contains the arguments and cookie necessary for the service to process the message. Posted request and notification messages may have multiple recipients, in which case there will be multiple child Service elements. All delivered messages can include only one Service element.

<Service>

Purpose: Identifies a service connected to the message interchange network
Message types: All message types.
Attributes: gcid   = (unique service identifier assigned by the message interchange network to the service);
                      name = (name of organization owning the service)/(service name)
Child Elements: Arguments-{0:1}, Cookie-{0:1}

Note: At least one of the two attributes should appear in order to specify the service. If one of the attributes is omitted, the message interchange network fills in the omitted attribute when composing a header for delivery.

<Arguments>

Purpose: Text or parameters that further specifies what the service is to perform and how.

Message types: All message types.
Attributes: None.
Content: Text string (as xml CDATA block).
Note: The format of the argument string is up to each service to define. The Arguments element need not be parsed or verified by the message interchange network. It is the responsibility of the message composer to insert the necessary contents understandable by the service. Whether or not the text is XML, the contents of the Arguments element should be enclosed in a CDATA block.

\<Cookie>
Purpose: Service-defined block of text or parameters that a service wants delivered with invocation.
Message types: All message types.
Attributes: None.
Content: Text string (as xml CDATA block).
Note: The cookie element contains a block of text (or xml) previously registered by a service with the message interchange network. The format of the cookie string is up to each service to define. The Cookie element need not be parsed or verified by the message interchange network. Whether or not the text is XML, the contents of the Cookie element will be enclosed in a CDATA block.

\<From>
Purpose: Identification of the sending (or invoking) service of the message.
Message types: All message types.
Attributes: None.
Child Elements: Service-{1}
Note: The From element indicates the sender of the message to the receiving services. In the delivery header, the service in the From element is the "logical" sender representing the service that included the receiving service into the message route. Thus, each receiving service perceives the received message as an invocation from the including service rather than a message coming from the originating sender service.

\<Topic>
Purpose: Indicate the topic of the message.
Message types: All message types except posted response.
Attributes: None.
Content: Dot-separated topic category.
Note: Topic provides a categorization of the message. The categorization should be hierarchical, but the message interchange network need not have a predefined set of topics. The

-68-

Topic element is useful for services that push out events, where the topic can be the name of the event for which recipients are being notified.

<Status>

Purpose: Indicates the status of processing a request.
Message types: Response.
Attributes: None.
Content: Dot-separated status code.

Note: The status element provides a means for the respondent of a request message to indicate the success (or lack thereof) of processing the request message. Absence of the status element in a response message indicates unqualified success of the response. In the case of a qualified success (e.g., a warning, a fault, a failure, or other status), a service should include the status element and provide an appropriate status code indicating the problem.

<Expiration>

Purpose: Specifies a time by which a message must complete its routing.
Message types: Posted request and notification.
Attributes: units (optional) = msec (default) | sec | hr
Content: numeric value.

Note: The expiration specifies when the message must reach its final destination. For request messages, the expiration includes the return of the response message. For notification messages, the expiration only applies up to delivery to the recipients. Expiration time is measured against the time the message is first posted to the message interchange network.

< Body>

Purpose: The root element for the actual message data.
Message types: All message types.
Attributes: None.
Child Elements: Document-{0:N}

<Document>

Purpose: A self-contained unit of message data.
Message types: All message types.
Attributes: id (optional) = (fragment name for document element);
      content-type (required) = (MIME type);
      schema (optional) = (URI to schema used for document; no default);
      xmlns (optional) = (URI to namespace used in document; no default);
      encoding (optional) = none (default) | base64
Content: The document data – XML, binary, free text, or any other format.

-69-

Appendix B.1 - Message as posted by MyBiz.com

```
1   <Message>xmlns="http://namespaces.grandcentral.com/messages/env-v01"
2      >type="request">test="false">
3         <Header>
4            <To>
5               <Service>name="TheAcmeCompany/Supply">
6                  <Arguments>
7                     <![CDATA[action=ProcessPurchaseOrder]]>
8                  </Arguments>
9               </Service>
10              <Service>name="BigBrother/GlobalListener"/>
11           </To>
12           <From>
13              <Service>gcid="386b4520f489c217"/>
14           </From>
15           <Expiration>units="hr">20</Expiration>
16        </Header>
17        <Body>
18           <Document>id="doc-1">content-type="text/xml">encoding="none">
19              <PurchaseOrder>xmlns="urn:MyBiz:ns-1">
20                 <Id>89987</Id>
21                 <Item>type="SKU">3456-76987-34</Item>
22                 <Quantity>2</Quantity>
23                 <CustomerNumber>3489</CustomerNumber>
24                 <Address>31>Ocean>Front>Way$omeCity,>AK,>10984</Address>
25              </PurchaseOrder>
26           </Document>
27        </Body>
28  </Message>
```

Appendix B.2 - Message as Delivered to XpandiCo

```
1   <Message>xmlns="http://namespaces.grandcentral.com/messages/env-v01"
2      >type="request">
3         <Header>
4            <Session>id="34b9f6d0-89eb-b5e1-0022-a376bf41c165"/>
5            <Token>value="84e309b38c56a18cb9835203"/>
6            <To>
7               <Service>gcid="3340f32c035d7499">name="xandico/zipPlus4">
8                  <Arguments>
9                     <![CDATA[element=PurchaseOrder/Address/Zip]]>
10                 </Arguments>
11              </Service>
12           </To>
13           <From>
14              <Service>gcid="386b4520f489c217">name="mybiz.com"/>
15           </From>
16        </Header>
17        <Body>
18           <Document>id="docA">content-type="text/xml">encoding="none">
19              <PurchaseOrder>xmlns="http://www.estandards.org/PurchaseOrderRequest">
20                 <POId>89987</POId>
21                 <Item>type="SKU">3456-76987-34</Item>
```

-70-

```
22          <Quantity>2</Quantity>
23          <CustomerID>3489</CustomerID>
24          <Address>
25              <Street>31>Ocean>Front>Way</Street>
26              <City>SomeCity,>AK</City>
27              <Zip>10984</Zip>
28          </Address>
29      </PurchaseOrder>
30  </Document>
31  </Body>
32 </Message>
```

Appendix B.3 - Response Message as Returned from XpandiCo

```
1  <Message>xmlns="http://namespaces.grandcentral.com/messages/env-v01"
2  >type="response">
3      <Header>
4          <Token>value="84e309b38c56a18cb9835203"/>
5          <From>
6              <Service>name="xpandico/zipPlus4"/>
7          </From>
8      </Header>
9      <Body>
10         <Document>id="xfm-doc">content-type="text/xml">encoding="none">
11             <PurchaseOrder>xmlns="http://www.estandards.org/PurchaseOrderRequest">
12                 <POId>89987</POId>
13                 <Item>type="SKU">3456-76987-34</Item>
14                 <Quantity>2</Quantity>
15                 <CustomerID>3489</CustomerID>
16                 <Address>
17                     <Street>31>Ocean>Front>Way</Street>
18                     <City>SomeCity,>AK</City>
19                     <Zip>10984-0673</Zip>
20                 </Address>
21             </PurchaseOrder>
22         </Document>
23     </Body>
24 </Message>
```

Appendix B.4 - Message as Delivered to The Acme Company

```
1  <Message>xmlns="http://namespaces.grandcentral.com/messages/env-v01"
2  >type="request">
3      <Header>
4          <Session>id="34b9f6d0-89eb-b5e1-0022-a376bf41c165"/>
5          <Token>value="30c481b28ad6e87b09f62182"/>
6          <To>
7              <Service>gcid="789e3223d9017f45">name="TheAcmeCompany/Supply">
8                  <Arguments>
9                      <![CDATA[action=ProcessPurchaseOrder]]>
10                 </Arguments>
11             </Service>
12         </To>
13         <From>
```

-71-

```
14        <Service>gcid="386b4520f489c217">name="mybiz.com"/>
15      </From>
16    </Header>
17    <Body>
18      <Document>id="doc-3">contenttype="text/xml">encoding="none">
19        <PurchaseOrder>xmlns="http://www.estandards.org/PurchaseOrderRequest">
20          <POId>89987</POId>
21          <Item>type="SKU">3456-76987-34</Item>
22          <Quantity>2</Quantity>
23          <CustomerID>BX0045012</CustomerID>
24          <Address>
25            <Street>31>Ocean>Front>Way</Street>
26            <City>SomeCity,>AK</City>
27            <Zip>10984-0673</Zip>
28          </Address>
29        </PurchaseOrder>
30      </Document>
31    </Body>
32  </Message>
```

Appendix B.5 – Response Message to MyBiz.com as Posted by The Acme Company

```
1   <Message>xmlns="http://namespaces.grandcentral.com/messages/env-v01"
2   >type="response">
3     <Header>
4       <Token>value="30c481b28ad6e87b09f62182"/>
5       <From>
6         <Service>name="TheAcmeCompany/Supply"/>
7       </From>
8     </Header>
9     <Body>
10      <Document>id="resp_doc">content+type="text/xml">encoding="base64">
11        zsl34rkuwkloirlmnm5loli2smn7fslk7ui88u98wq7rsdolikjhdfloi9rkjjf
12      </Document>
13    </Body>
14  </Message>
```

-72-